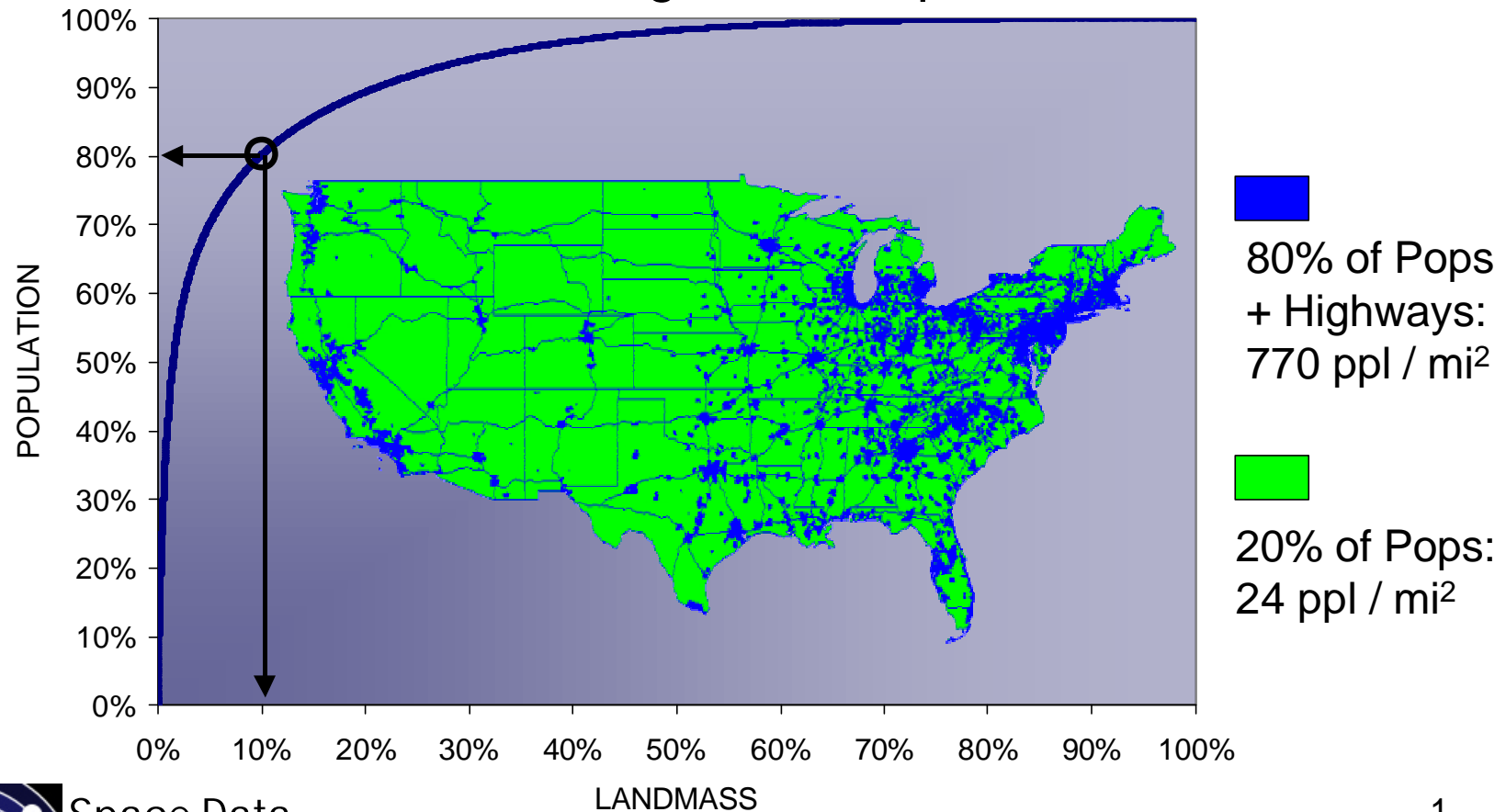


The Reality of Demographics

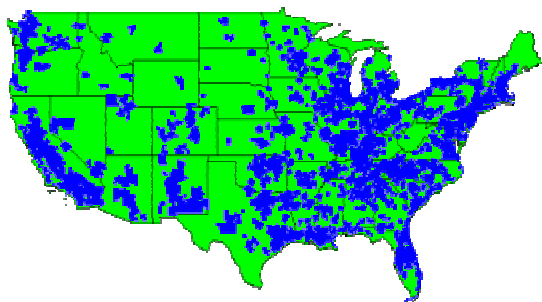
- 80% of population lives in 10% of landmass by ZIP codes
- Build 10X more towers or ignore the sparsest 20%?



Coverage of Messaging Carriers

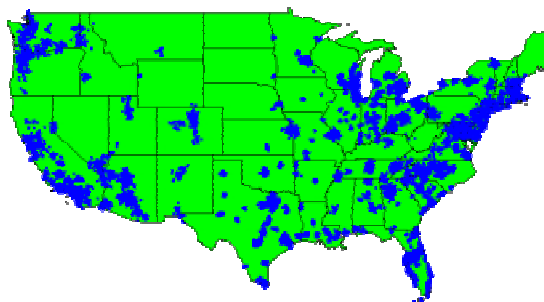
Weblink ReFLEX25

84% of Pops / 28% of Area



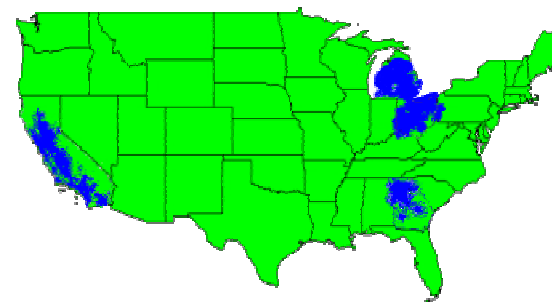
Arch ReFLEX25

81% of Pops / 27% of Area



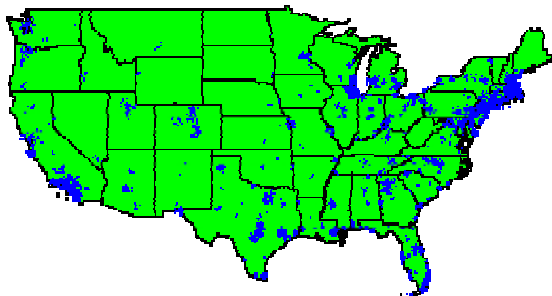
Verizon ReFLEX25

20% of Pops / 6% of Area



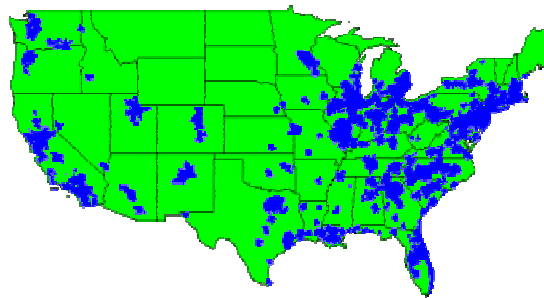
Skytel ReFLEX50

68% of Pops / 10% of Area



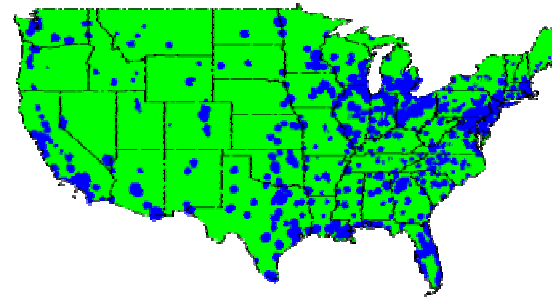
Cingular Mobitex

79% of Pops / 21% of Area



Motient DataTAC

80% of Pops / 21% of Area



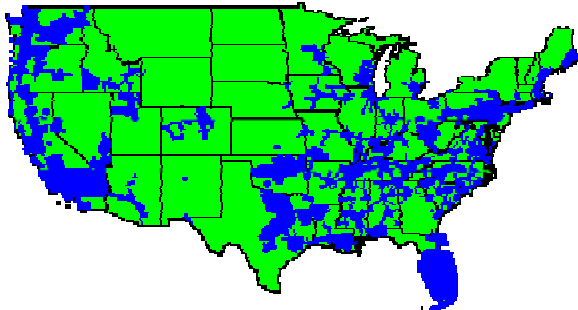
Space Data
Corporation

Source: Estimates based on ZIP Codes reported covered from Company Web Sites and 2000 US Census Zip Code Tract Area Data for Pop. / Area of Continental United States

Coverage of Voice Carriers

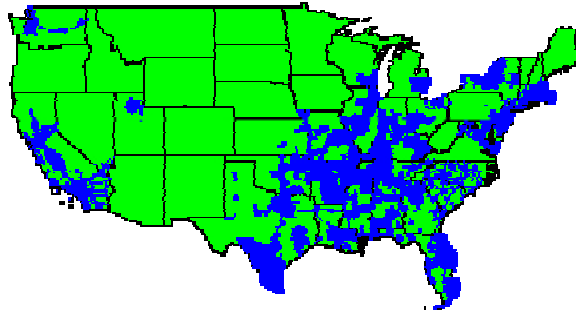
ATT + Affiliates

TDMA-GSM / 11,158 sites
76% Pops / 25% Area



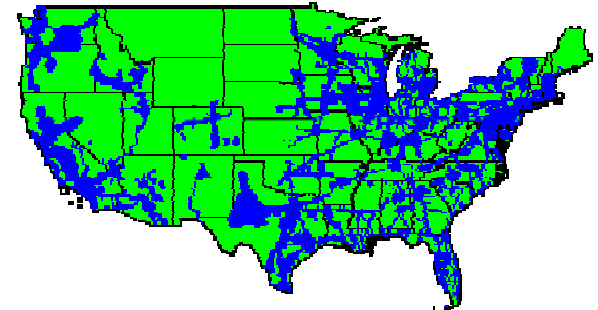
Cingular

TDMA-GSM / 17,000 sites
71% Pops / 22% Area



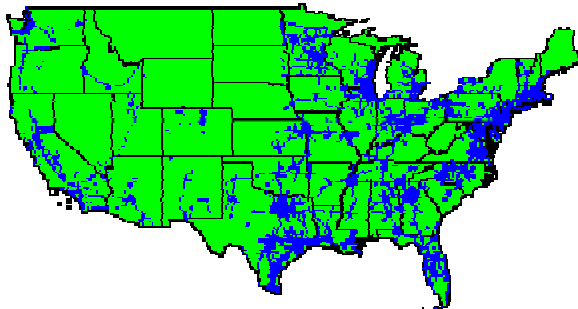
Nextel + Nxtl Ptnrs

iDEN / 14,500 sites
87% Pops / 30% Area



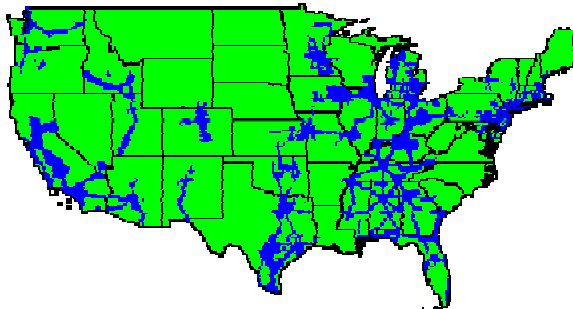
Sprint + Affiliates

CDMA / 17,600 sites
84% Pops / 20% Area



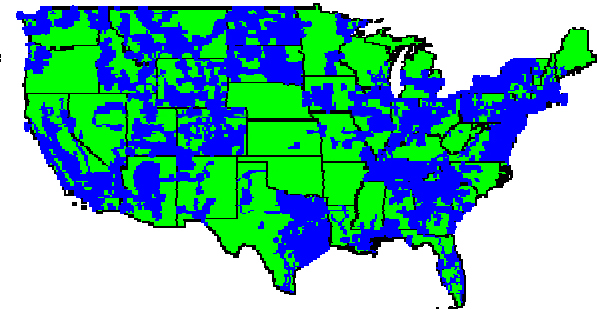
T-Mobile

GSM / 15,453 sites
69% Pops / 16% Area



Verizon

CDMA-AMPS / 16,250 sites
84% Pops / 42% Area



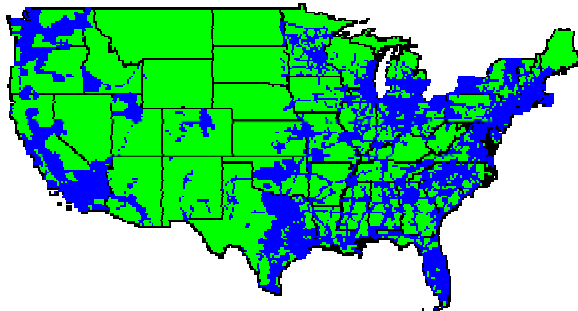
Space Data
Corporation

Source: Strategis Group & Telecom Mapping Comp. Maps
and 3/27/02 Morgan Stanley tower report

Coverage of Voice Technologies

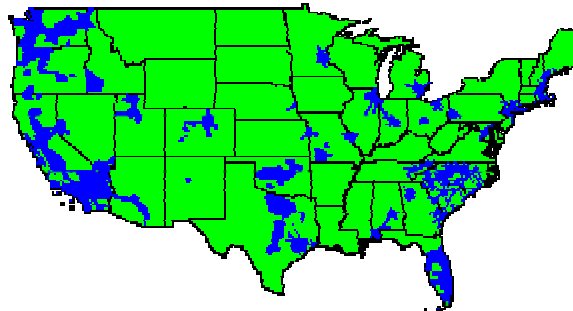
CDMA1X

850 MHz + 1900 MHz
86% Pop / 23% Area



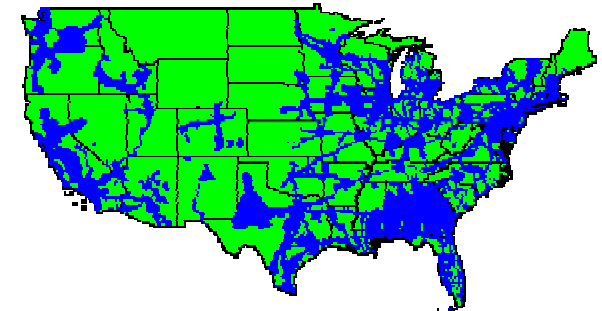
GPRS

1900 MHz
58% Pop / 13% Area



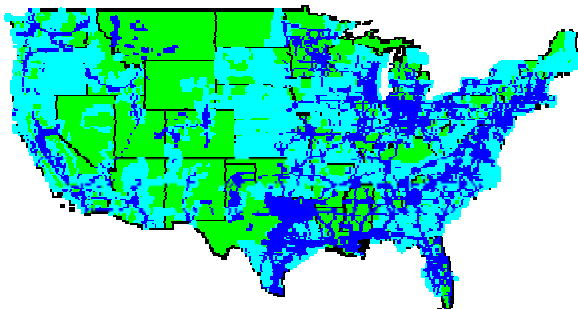
iDEN

800 MHz
88% Pop / 32% Area



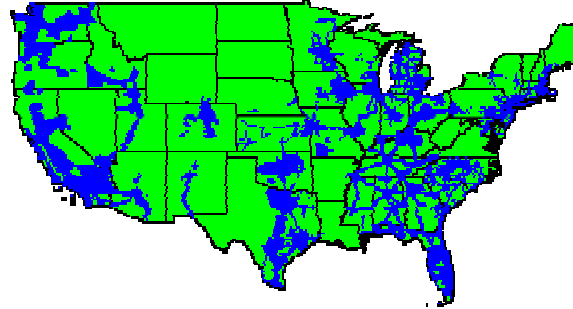
CDMA

850 MHz + 1900 MHz
92% Pop / 60% Area



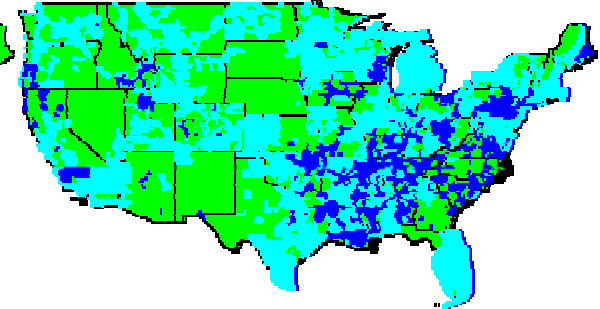
GSM

1900 MHz
78% Pop / 24% Area



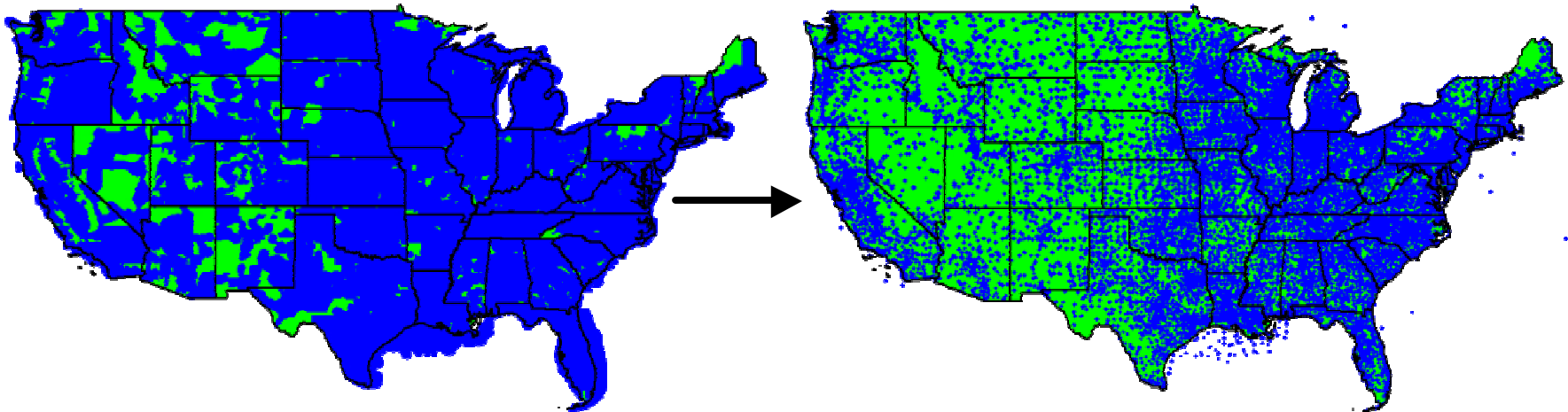
TDMA

850 MHz + 1900 MHz
89% Pop / 54% Area



Rural Coverage May Get Worse

- Aug 2002: FCC puts 5 year sunset of AMPS requirement
 - Many rural areas build for 3W analog coverage and may require 3X towers to maintain same footprint for handsets
 - Major carriers likely to discontinue analog upon sunset
- Oct 2002: ATT announces will discontinue CDPD in 2004



AMPS coverage with
3 W bag phone (flat earth)

Best case coverage with
 $\frac{1}{2}$ W handheld phone (75% area)

Capital Expenditure vs. Coverage History: Rural Coverage Issues will Continue

- TIA forecasts \$83B in CapEx from '01 – '05 to deploy 2.5 G / 3 G
 - As with 2G, technology overlays not increased coverage
 - 3G requires up to 3 X towers for same coverage as 2G

